Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Thermoelectric properties of epitaxial Li_xCoO_2 thin films . ZHIGANG MA, A. VENIMADHAV, QI LI, X. X. XI, H. P. SUN , XIAOQING PAN , Penn State University — We have studied the thermoelectric properties of layered cobaltate Li_xCoO_2 since the similar compound Na_xCoO_2 has shown exceptionally high thermoelectric power. Both *in situ* epitaxial grown and topotaxial Li_xCoO_2 films have been achieved. Epitaxial films were grown by pulsed-laser deposition technique and topotaxial films were prepared by converting an epitaxial Co_3O_4 film to $Li_xCoO_2$by annealing in Li vapor. X-ray diffraction analysis showed the films are *c*-axis oriented. For topotaxial $Li_xCoO_2$the largest thermoelectric power of the samples is found to be around 380 μV/K at room temperature, while *in situ* films show thermopower of 100 μV/K. Both show semiconducting behaviors. The difference on the thermopower of the two types of samples will be discussed.

Zhigang Ma

Date submitted: 25 Nov 2006 Electronic form version 1.4